DOCUMENT RESUME

ED 390 244 EC 304 509

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TITLE Time and Task Sampling Approach to Validation: A Quantitative Evaluation of Facilitated Communication Using Educational Computer Games.
PUB DATE 30 Nov 95
NOTE 5p.; Paper presented at the Annual Conference of the Association for Persons with Severe Handicaps (San Francisco, CA, November 30-December 2, 1995).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adolescents; Adults; *Augmentative and Alternative Communication; *Autism; Communication Aids (for Disabled); *Communication Skills; Computer Assisted Instruction; Computer Games; Testing Problems; *Validity
IDENTIFIERS *Facilitated Communication

ABSTRACT

This study asked whether nine adolescent and adult facilitated communication users with autism could, in a facilitator-blind condition, respond accurately to stimuli presented on a computer screen, thus demonstrating that they are the sole authors of their communication. A time and task sampling method was used, in which various communication tasks were introduced over a period of months. Both open and blind conditions were developed, with blind conditions tailored to individual participants' support needs and facilitation styles. Researchers visually monitored each facilitator, and viewed each videotaped session twice to assure the integrity of the blind condition. Videotapes were also viewed by independent judges. Five participants achieved scores on computer games in blind conditions higher than would be expected by chance. Three who did not do so failed to complete sufficient items in the blind condition. Four participants spontaneously read material presented on computer screens aloud, independently pointing to correct responses or verbalizing a synonym of the stimulus word. Five participants demonstrated some independent typing. Each participant required emotional and logistical support to manage test anxiety, facilitate sequencing of actions, and shift attention from the computer screen to the computer keyboard. (Contains 15 references.) (PB)

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ED 390 244

Time and Task Sampling Approach to Validation:
A Quantitative Evaluation of Facilitated Communication
Using Educational Computer Games

TASH Conference, San Francisco, CA
November 30, 1995
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This investigation was conducted to determine whether facilitated communication users could, in a facilitator-blind condition, respond accurately to stimuli presented on a computer screen, thus demonstrating that they are the authors of their communication. A time and task sampling method, in which a variety of communication tasks were introduced over a period of months, was used. Tasks and conditions were introduced within the context of naturalistic play. The research protocol drew on conditions that have seemed to support the production of successful communication by facilitated communication users: participation in typical environments (Cardinal & Hanson, 1994, Ogletree, Hamtil, Solberg & Scoby-Schmelzle, 1993), support by skilled and familiar facilitators (Sabin & Donnellan, 1993), opportunities for considerable practice (Cardinal & Hanson, 1994), feedback (Sheehan & Mattuozi, 1994), interesting activities (Vazquez, 1994), opportunities for self-correction (Sheehan & Mattuozi, 1994), individualized teaching strategies (Biklen & Schubert, 1991), visual display of response choices (Calculator & Singer, 1992), and a collaborative approach (Olney, 1995).

Blind Condition: This study included both open trials -- trials in which facilitators had access to the stimuli presented on the computer screen -- and blind trials. A blind condition was created individually for each participant depending on his or her individual support needs and facilitation style. No artificial screens or barriers were used. Instead, the natural environment was manipulated to prevent facilitators from seeing the computer screen. This was done by turning the computer screen away from the facilitator and identifying visual targets for facilitators. In the majority of responses facilitators did see the computer keyboard during blind trials. One facilitator chose at times not to look at the keyboard.

In each session, the researcher sat to the left and slightly behind the participant. With the left-handed participant, the researcher sat to the right and slightly behind the participant. The seating arrangement put the researcher in full visual contact with the computer screen, participant and facilitator while controlling for inadvertent cuing by the researcher. The adequacy of the blind condition was checked by the researcher during each session. In addition, the researcher visually monitored the facilitator, and viewed each videotaped session twice to assure the integrity of the blind condition. Finally, an independent observer viewed over 200 items from randomly selected segments of videotape. This sample constituted approximately 9% of the total data items collected in the study.

Inter-rater Reliability: There was 100% agreement between the researcher and the independent judge in the rating of open and blind trials, and 99% agreement on correct versus incorrect responses. Percentages were obtained by calculating the number of trials within which the independent judge and the researcher rated the item identically over the total number of trials examined.

Independent Variables: In addition to the nine protocol conditions listed above, two variables were crucial to the study: apparently motivating educational computer games, and a teaching technique that involved the "scaffolding" of information by the facilitator. Educational computer games were used that were adult-oriented, contained graduated difficulty levels, and examined a variety of academic skills (e.g. arithmetic, spelling and reading

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comprehension). Games that were not timed, and that had simple graphics and minimal sound were selected. The games featured three response formats: multiple choice, single letter or number, and single word.

This investigator implemented a "scaffolding" approach described by Wood, Bruner and Ross (1976) as follows: enticing participants into the action of the games and securing adherence to the rules, reduction of the number of constituent acts involved in responding to game items by eliminating extraneous stimuli and actions, keeping participant engaged by encouraging focus on task completion, pointing out critical features of each game, confirming correct choices, and modelling successful responses to items.

Method: During a nine month period one adolescent and eight adults (n = 9) who use facilitated communication along with their regular facilitators met with the researcher for a total of 83 individual hour-long sessions (M = 9.22, SD = 1.03). During the initial one or two sessions the participants were introduced to two or more computer games. Blind trials were introduced intermittently beginning in the second or third session.

Each session began with an informal discussion. This was followed by a warm-up session during which the facilitator and participant played the computer games collaboratively, reviewing the sequence of actions and the performance demands of each game (e.g. selection of difficulty levels, and when to use the enter key or space bar). Finally, playing in the blind condition was suggested. The researcher observed participants carefully and provided encouragement, support and assistance during all trials. The following behavioral indicators were used to initiate blind trials: (a) successful responses in the open condition, and (b) nonverbal manifestations of emotional and physical comfort including a relaxed facial expression and body posture. Nonverbal indicators were also used to determine when to discontinue blind trials: (a) five or more consecutive errors in the blind condition *in combination with* (b) increased facial or muscular tension and/or (c) observed break-down of necessary motor and sequencing responses.

Participants and Settings: Participants were selected who had (a) communicated at a conversational level with at least two facilitators, (b) produced sentence level messages on at least a weekly basis, (c) used the method a minimum of 18 months at the onset of the study, and (d) expressed an interest in participating in an experimental validation study. Facilitators all had a minimum of introductory training in the facilitated communication method. Settings remained consistent for each individual throughout the study, and allowed for user-facilitator proximity, control of external interference (such as noise and distractions), and good lighting and climate control.

Materials: Participants engaged in computer game activities using a standard personal computer (n = 5), lap top computer (n = 3) or Canon Communicator (n = 1). Of 83 total sessions, 62 (75%) were videotaped. One individual who chose not to be videotaped was audiotaped instead. During the remaining 12 sessions computer games were not played.

Scoring: A one-sample X^2 test was used to evaluate all blind and open trials with 10 or more items. This goodness-of-fit test was used to determine if there was a statistically significant difference between number of correct responses and the number expected based on chance alone. Data were collected between March and November of 1994. A decision to evaluate first and second trials was made in late August of 1994. Therefore, data collected prior to September were analyzed based on the first response only. Data collected in September, October and November were analyzed based on first and second responses. All post-test data were analyzed based on first response only.

Post-test: Ten items from the Word Attack game, completed without facilitation, comprised the post-test. The purpose of the post-test was to ascertain whether the ability of the five validating participants to perform on this task could be attributed to facilitated communication, or whether the participants were able to (or had learned to) perform at criterion levels. A comparative analysis was performed. In this test, the blind-facilitated scores of these five participants were compared to their unfacilitated scores. It was determined that there was a significant difference between these scores ($X^2 = 49.95$, $df = 1$, $p < .05$). indicating that the participants performed significantly better with than without facilitation.

X^2 TEST COMPARING FACILITATOR-BLIND SCORES WITH UNFACILITATED SCORES ON WORD ATTACK MULTIPLE CHOICE GAME

Case	Facilitator-Blind Score	(n trials)	Unfacilitated Score	(n trials)
1	41%	(18/44)	30%	(3/10)
2	69%	(9/13)	10%	(1/10)
3	70%	(7/10)	50%	(5/10)
4	57%	(8/14)	0%	(0/10)
5	47%	(8/17)	40%	(4/10)

Results: Five of nine participants achieved scores on computer games in the facilitator-blind condition that were greater than would be expected by chance. Three validated on Word Attack Plus, Multiple Choice Quiz (1988) alone. One participant validated on both Word Attack and Spell it Plus, Decode It (1989). Another validated using Word Attack and Math Blaster, Follow the Steps (1991). Because participants selected the games, and chose when to initiate and discontinue blind trials, results on blind trial vary considerably. Some participants did not play certain games at all, while others did not complete a sufficient number of trials in the blind condition to permit chi-square analysis. It should be noted that three individuals who failed to validate their communication did not complete sufficient items in the blind condition.

Case	VALIDATION DATA Word Attack Plus Chi-sq. (n trials)	Math Blaster Chi-sq. (n trls)	Spell It Plus Chi-sq.(n trls)	Notes
1	*X^2= 5.94 (18/44)	*X^2=8.76 (7/11)	&	Validated
2	*X^2=13.56 (9/13)			
	*X^2= 8.33 (9/16)	&	&	Validated
3	*X^2=10.00 (15/30)			
	*X^2=10.80 (7/10)	&	&	Validated
4	*X^2= 7.71 (8/14)	(-)	*X^2=69.66(18/34)	Validated
5	*X^2= 4.41 (8/17)			(audiotaped)
	*X^2= 4.41 (8/17)	&	&	Validated
6	&	&	&	
7	&	&	&	
8	nsX^2=2.97 (8/19)	(-)	&	
9	&	&	&	

* X^2 was significant, df = 1, p < .05.
& Insufficient blind trials for X^2 analysis.
ns Scores did not meet validation criteria.
(-) Did not play game.

No participant validated on the first attempt. This finding is consistent both with studies that tested subjects once and found no evidence of valid communication (Moore, et al., 1993; Szempruch & Jacobsen, 1993; Wheeler, et al., 1993), and with other time and/or task sampling studies with more positive outcomes (Cardinal & Hanson, 1994; Vazquez, 1994).

Four participants confirmed their abilities by spontaneously reading material presented on the computer screen aloud, independently pointing to the correct response on the screen or by verbalizing a synonym of the stimulus word. All participants performed better in the open condition than in the blind condition. Each required emotional and logistical support to manage test anxiety, to shift attention from the computer screen to the keyboard, and to facilitate sequencing of actions. Five participants demonstrated some independent typing, albeit inconsistently. Strong preferences for specific people or facilitators and for specific computer games were documented.

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